



South Coast
AQMD

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ANNUAL AIR QUALITY MONITORING NETWORK PLAN

July 1, 2018

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INTRODUCTION

An annual review of the Air Quality Monitoring Network is required by Federal Regulations as a means to identify and report needs for additions, relocations, or terminations of monitoring sites or instrumentation. This report describes the network of ambient air quality monitors in the jurisdiction of and operated by the South Coast Air Quality Management District (SCAQMD). It includes a review of actions taken during the 2017-2018 fiscal year and plans for action in the year ahead. This plan addresses the requirement for an annual network plan as listed in Title 40, Part 58, Section 10 of the Code of Federal Regulations (40 CFR § 58.10). Regulations require the report be submitted to the U.S. Environmental Protection Agency (EPA) by July 1 of each year after a 30 day public comment period. All monitors meet the requirement of appendices A, B, C, D, and E as required in 40 CFR § 58.10(a)(1) where applicable.

The SCAQMD staff, along with the California Air Resources Board (CARB), conducted an extensive review of the air monitoring sites in the South Coast Air Basin (SCAB) in late 1980. During the review, State and Local Air Monitoring Stations (SLAMS) designations, site type, and spatial scales of representativeness were assigned to the criteria pollutants monitored at each site. Since that time, the EPA Region IX and CARB staff visited selected sites to confirm compliance with applicable siting criteria and related requirements. The most recent site visits occurred in July, 2016 to conduct a comprehensive Technical System Audit (TSA) of the ambient air monitoring network. Each year, SCAQMD staff conducts an annual review of its air monitoring network and submits it to the EPA. The review process focuses on current and future network air monitoring strategies and network changes are made in consultation with the EPA and CARB. When re-location of monitoring sites are required, site reports are updated in the EPA's Air Quality System (AQS) to document compliance with established siting criteria for the new locations.

Public Comments

Pursuant to Federal regulations, a draft plan was made available for public inspection from May 17 through June 17, 2018 for a comment period of 30 days. No comments were received during the period. Hard copies of the final document were available June 29, 2018 at the SCAQMD's Public Information Desk in Diamond Bar, CA. The document was also available on the SCAQMD website as of June, 17, 2018 in the drop down menu under the "Air Quality", "Clean Air Plans" and "Air Monitoring Network Plan." (<http://www.aqmd.gov/home/air-quality/clean-air-plans/monitoring-network-plan>). The final document was available to EPA June 29, 2018 and a hardcopy will be provided.

Network Design

The SCAQMD operates 37 permanent monitoring stations and 5 single-pollutant source impact Lead (Pb) air monitoring sites in the SCAB and a portion of the Salton Sea Air Basin in Coachella Valley. This area includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The newest permanent sites were added as part of the near road monitoring network at Ontario Etiwanda and Route 60; Long Beach Route 710 and Anaheim Route 5. The newest source impact Pb sites were added in January 2010 as required by EPA regulation. Table 1 provides a list of monitoring locations, the EPA AQS site codes, and the pollutants measured at each site. Table 2 provides the spatial scale and the site type for each monitor at all sites.

Table 3 describes the monitoring purpose for the monitors at each site. Table 4 describes the site type, spatial scale and monitoring purpose for continuous particulate analyzers at each site. A requirement of the annual network plan, the *monitoring purpose* is the reason why a certain pollutant is being measured at a certain site.

A list and description of monitoring purposes are provided below and portions are adapted from the CARB annual network plan for 2007.

Background Level monitoring is used to determine general background levels of air pollutants as they enter the SCAB.

High Concentration monitoring is conducted at sites to determine the highest concentration of an air pollutant in an area within the monitoring network. A monitoring network may have multiple high concentration sites (i.e., due to varying meteorology year to year).

Pollutant Transport is the movement of pollutant between air basins or areas within an air basin. Transport monitoring is used to assess and mitigate upwind areas when transported pollutant affects neighboring downwind areas. Also, transport monitoring is used to determine the extent of regional pollutant transport among populated areas and to rural areas.

Population Exposure monitoring is conducted to represent the air pollutant concentrations that a populated area is exposed to.

Representative Concentration monitoring is conducted to represent the air quality concentrations for a pollutant expected to be similar throughout a geographical area. These sites do not necessarily indicate the highest concentrations in the area for a particular pollutant.

Source Impact monitoring is used to determine the impact of significant sources or source categories of air quality emissions on ambient air quality. The air pollutant sources may be stationary or mobile.

Trend Analysis monitoring is useful for comparing and analyzing air pollution concentrations over time. Usually, trend analyses can be used to assess the progress in improving air quality for an area over a period of many years.

Site Comparison monitoring is used to assess the effect on measured pollutant levels of moving a monitoring location a short distance (usually less than two miles). Some monitoring stations become no longer usable due to development, change of lease terms, or eviction. In these cases, attempts are made to conduct concurrent monitoring at the old and new site for a period of at least one year in order to compare pollutant concentrations.

Real Time Reporting/Modeling is used to provide data to EPA's AIRNOW system which reports conditions for air pollutants on a real time basis to the general public. Data is also used to provide accurate and timely air quality forecast guidance to residents of the SCAB.

Multiple purposes for measuring a pollutant at a particular site are possible. There is some overlap between site type and monitoring purposes as defined by EPA and given in Tables 2, 3, and 4.

TABLE 1. List of Monitoring Sites

	Location	AQS No.	Pollutants Monitored	Start Date
1	Anaheim	060590007	CO,NO2,O3,PM10,PM2.5	08/01
2	Anaheim Route 5 Near Road	060590008	CO, NO2	01/14
3	ATSF (Exide)	060371406	Pb	01/99
4	Azusa	060370002	CO,NO2,O3,PM10,PM2.5	01/57
5	Banning Airport	060650012	NO2,O3,PM10, PM2.5	04/97
6	Big Bear	060718001	PM2.5	02/99
7	Closet World (Quemetco)	060371404	Pb	10/08
8	Compton	060371302	CO,NO2,O3,Pb,PM2.5	01/04
9	Costa Mesa ¹	060591003	CO,NO2,SO2,O3	11/89
10	Central San Bernardino Mountains	060710005	O3,PM10	10/73
11	Fontana	060712002	CO,NO2,SO2,O3,PM10,PM2.5,Pb	08/81
12	Glendora	060370016	CO,NO2,O3,PM2.5,PM10	08/80
13	Indio	060652002	O3,PM10,PM2.5	01/83
14	La Habra	060595001	CO,NO2,O3	08/60
15	Lake Elsinore	060659001	CO,NO2,O3,PM2.5,PM10	06/87
16	LAX Hastings	060375005	CO,NO2,O3,PM10,Pb	04/04
17	Long Beach (Hudson)	060374006	CO, NO2,SO2,O3,PM10	01/10
18	Long Beach Route 710 Near Road	060374008	NO2, PM2.5	01/15
19	Long Beach (North)	060374002	PM2.5	10/62
20	Long Beach (South)	060374004	PM10,Pb,PM2.5,Pb	06/03
21	Los Angeles (Main St.)	060371103	CO,NO2,SO2,O3,PM10,Pb,PM2.5,Pb	09/79
22	Mecca (Saul Martinez)	060652005	PM10	01/11
23	Mira Loma (Van Buren)	060658005	CO,NO2,O3,PM10,PM2.5	11/05
24	Mission Viejo	060592022	CO,O3,PM10,PM2.5	06/99
25	Norco	060650003	PM10	12/80
26	Ontario Etiwanda Near Road	060710026	CO, NO2	06/14
27	Ontario Route 60 Near Road	060710027	NO2, PM2.5	01/15
28	Palm Springs	060655001	CO,NO2,O3,PM10,PM2.5	04/71

¹Costa Mesa closed on 6/30/17 due to sale of monitoring site property.

TABLE 1. (cont.) List of Monitoring Sites

	Location	AQS No.	Pollutants Monitored	Start Date
29	Pasadena	060372005	CO, NO2, O3, PM2.5	04/82
30	Perris	060656001	O3,PM10	05/73
31	Pico Rivera #2	060371602	CO,NO2,O3,Pb,PM2.5,Pb,PM10	09/05
32	Pomona	060371701	CO,NO2,O3	06/65
33	Redlands	060714003	O3,PM10	09/86
34	Rehrig (Exide) ¹	060371405	Pb	11/07
35	Reseda	060371201	CO,NO2,O3,PM2.5	03/65
36	Rubidoux	060658001	CO,NO2,SO2,O3,PM10,Pb,PM2.5,Pb	09/72
37	San Bernardino	060719004	CO,NO2,O3,PM10,Pb,PM2.5	05/86
38	Santa Clarita	060376012	CO,NO2,O3,PM10,PM2.5	05/01
39	SA Recycling ²	060711407	Pb	06/12
40	Temecula	060650016	O3, PM2.5	06/10
41	Uddelholm (Trojan Battery)	060371403	Pb	11/92
42	Upland ³	060711004	CO,NO2,O3, PM2.5,PM10	03/73
43	West Los Angeles ⁴	060370113	CO,NO2,O3	05/84

¹Rehrig facility non-operational between September 21, 2017 and January 25, 2018 due to construction.

²SA Recycling Closed on July 11, 2017 due to sale of property.

³Upland Pb removed closed on February 9, 2017 due to terms of lease.

⁴West LA site shutdown for improvements 8/17/17 through 1/16/18.

TABLE 2. FRM Criteria Pollutant Spatial Scales and Site Type

SPATIAL SCALE

MI – Microscale

MS – Middle Scale

NS – Neighborhood Scale

US – Urban Scale

SITE TYPE

HC – Highest Concentration

PE – Population Exposure

IM – Source Oriented (Impact)

BK – General Background

	Location	CO	NO2	SO2	O3	Manual PM10	Manual PM2.5	Pb
1	Anaheim	NS/PE	US/PE		NS/PE	NS/PE	NS/PE	
2	Anaheim Route 5 Near Road	MI/HC	MI/HC					
3	ATSF (Exide)							MI/IM
4	Azusa	NS/PE	US/PE		US/HC	NS/PE	NS/PE	
5	Banning Airport		NS/PE		NS/PE	NS/PE		
6	Big Bear						NS/PE	
7	Closet World (Quemetco)							MI/IM
8	Compton	MS/HC	MS/PE		NS/PE		NS/PE	NS/PE
9	Costa Mesa	NS/PE	NS/PE	NS/PE	NS/PE			
10	Crestline				NS/HC	NS/PE		
11	Fontana	NS/PE	US/PE	NS/PE	US/PE	NS/HC/PE	NS/PE	
12	Glendora	NS/PE	NS/PE		NS/HC			
13	Indio				NS/PE	NS/HC	NS/PE	
14	La Habra	NS/PE	US/PE		NS/PE			
15	Lake Elsinore	NS/PE	NS/PE		NS/PE			
16	LAX Hastings	MS/PE/BK	MS/PE/BK	NS/PE/BK	NS/PE/BK	NS/PE/BK		NS/PE/BK
17	Long Beach (Hudson)	NS/HC	NS/PE	NS/HC	NS/PE	NS/HC		
18	Long Beach (North)						NS/HC	
19	Long Beach Route 710 Near Road		MI/HC				MI/HC	
20	Los Angeles (Main St.)	NS/PE	NS/HC	NS/PE	NS/PE	NS/PE	NS/HC	NS/PE
21	Mecca (Saul Martinez)					NS/PE		
22	Mira Loma (Van Buren)	NS/PE	NS/PE		NS/PE	NS/HC	NS/HC	
23	Mission Viejo	NS/PE			NS/PE	NS/PE	NS/PE	
24	Norco					NS/PE		
25	Ontario Etiwanda Near Road	MI/HC	MI/HC					
26	Ontario Route 60 Near Road		MI/HC				MI/HC	
27	Palm Springs	NS/PE	NS/PE		NS/PE	NS/PE	NS/PE	
28	Pasadena	MS/PE	MS/HC		NS/PE		NS/PE	
29	Perris				NS/PE	NS/PE		
30	Pico Rivera #2	NS/PE	NS/HC		NS/PE		NS/PE	NS/PE
31	Pomona	MI/PE	MS/PE		MS/PE			
32	Redlands				NS/PE/HC	NS/PE		
33	Rehrig (Exide)							MI/IM
34	Reseda	NS/PE	US/PE		US/PE		NS/PE	
35	Rubidoux	NS/PE	US/PE	NS/PE	US/HC	NS/HC	NS/HC	NS/PE
36	San Bernardino	MS/PE	US/PE		NS/HC	NS/HC	NS/PE	NS/PE
37	Santa Clarita	NS/PE	NS/PE		US/HC	NS/PE		
38	South Long Beach					NS/HC	NS/HC	NS/HC
39	SA Recycling							HC/IM
40	Temecula				NS/HC			
41	Uddelholm (Trojan Battery)							MI/IM
42	Upland	NS/PE	NS/PE		NS/PE			NS/PE
43	West Los Angeles	NS/PE	MS/HC		NS/PE			

TABLE 3. FRM Criteria Pollutant Monitoring Purposes
MONITORING PURPOSE

BK – Background

HC – High Concentration

TP – Pollutant Transport

EX – Population Exposure

SO – Source Impact

RC – Representative Concentration

RM – Real-Time Reporting/Modeling

TR – Trend Analysis

CP – Site Comparisons

CO – Collocated

	Location	CO	NO2	SO2	O3	Manual PM10	Manual PM2.5	Pb
1	Anaheim	TR	TR/RC		TR	TR/RC	TR/EX	
2	Anaheim Route 5 Near Road	SO/HC	SO/HC					
3	ATSF (Exide)							SO
4	Azusa	TR	TR/RC		TR	TR	TR/EX	
5	Banning Airport		TP/RC		TP	TP		
6	Big Bear						EX/SO/TP	
7	Closet World (Quemetco)							SO
8	Compton	TR/HC	TR/RC		TR/RC		EX/RC	EX
9	Costa Mesa	RC	TR/RC	TR	RC			
10	Crestline				HC	TP/RC		
11	Fontana	RC	TP/RC	TR	RC	HC	EX/TP	
12	Glendora	RC	TR/RC		HC			
13	Indio				TP	HC/CO	TP/EX	
14	La Habra	RC	TR/RC		RC			
15	Lake Elsinore	TP/RC	TP/RC		TP/RC			
16	LAX Hastings	BK	BK	BK	BK	BK		BK
17	Long Beach (Hudson)	TR	TR/RC	TR/HC	TR	TR/RC/HC		
18	Long Beach (North)						EX/HC	
19	Long Beach Route 710 Near Road		SO/HC				SO/HC	
20	Los Angeles (Main St.)	SO/RC	SO/HC	TR	TR/RC	TR/RC/CO	EX/HC/CO	EX/CO
21	Mecca (Saul Martinez)					EX/RC		
22	Mira Loma (Van Buren)	TR/RC	TR/RC		TR/HC	HC	EX/HC/CO	
23	Mission Viejo	RC			TR/RC	TR/RC	EX/RC	
24	Norco					TR/RC		
25	Ontario Etiwanda Near Road	SO/HC	SO/HC					
26	Ontario Route 60 Near Road		SO/HC				SO/HC	
27	Palm Springs	TP/RC	TP/RC		TP	TP/HC	EX/TP	
28	Pasadena	TR/RC	TR/HC		TR/RC		EX/RC	
29	Perris				TP	TR		
30	Pico Rivera #2	RC	HC		EX		EX/RC	EX
31	Pomona	RC	RC		EX			
32	Redlands				TP/RC	TP/RC		
33	Rehrig (Exide)							SO/CO
34	Reseda	RC	TR/RC		EX		EX/RC	
35	Rubidoux	TR/RC	TR/RC	TR	TR/HC	TR/HC/CO	EX/TR/HC/CO	EX
36	San Bernardino	TR/RC	TP/RC		TR/HC	TR/HC	EX/TR	EX
37	Santa Clarita	RC	TP/RC		TP/HC	RC	EX/RC	
38	South Long Beach					HC	EX/SO	EX
39	SA Recycling							SO/HC
40	Uddelholm (Trojan Battery)							SO
41	Temecula				TR/HC			
42	Upland	RC	TR/RC		TR/RC			
43	West Los Angeles	RC	TR/HC		RC			

TABLE 4. Continuous PM₁₀/PM_{2.5} Monitoring Purpose, Site Type and Spatial Scales

<u>SITE TYPE</u>	<u>SPATIAL SCALE</u>	<u>INSTRUMENT TYPE</u>
HC – High Concentration	MI – Microscale	TEOM
PE – Population Exposure	NS – Neighborhood Scale	BAM (NON-FEM)
BK - Background		BAM (FEM)

MONITORING PURPOSE

SO – Source Impact	RM – Real-Time Reporting/Modeling
TP – Pollutant Transport	SPM – Special Purpose Monitoring
TR – Trend Analysis	CO - Collocated

Location	Continuous PM ₁₀				Continuous PM _{2.5}				PM ₁₀ – 2.5
	Type	Purpose	Site Type	Scale	Type	Purpose	Site Type	Scale	Operational
Anaheim	BAM/FEM	RM/TR	PE	NS	BAM/FEM	RM/TR	PE	NS	
Banning Airport					BAM/NON-FEM	RM	PE	NS	
Crestline					BAM/NON-FEM	RM	PE	NS	
Glendora	BAM/FEM	RM	PE	NS	BAM/NON-FEM	RM	PE	NS	
Indio	TEOM/FEM	RM	HC	NS	BAM/FEM	SPM	PE	NS	
Lake Elsinore	TEOM/FEM	RM	PE	NS	BAM/NON-FEM	RM	PE	NS	
Long Beach Route 710 Near Road					BAM/FEM	RM/SO	HC	MI	
Los Angeles (Main St.)	BAM/FEM	RM/TR	PE	NS	BAM/FEM	RM	HC	NS	Yes
Mecca (Saul Martinez)	TEOM/FEM	RM/CO	PE	NS					
Mira Loma (Van Buren)	BAM/FEM	RM	HC	NS	BAM/FEM	RM	HC	NS	
Ontario Route 60 Near Road					BAM/FEM	RM/SO	HC	MI	
Palm Springs	TEOM/FEM	RM/TP	HC	NS					
Reseda					BAM/NON-FEM	RM	PE	NS	
Redlands					BAM/FEM	SPM	PE	NS	
Rubidoux	TEOM/FEM	RM/TR	HC	NS	BAM/FEM	RM/TR/CO	HC	NS	Yes
					BAM/FEM	SPM/CO	HC	NS	
San Bernardino	TEOM/FEM	RM/TR	HC	NS					
Santa Clarita					BAM/NON-FEM	RM	PE	NS	
South Long Beach					BAM/FEM	RM/SO	PE	NS	
Temecula					BAM/NON-FEM	RM	PE	NS	
Upland	BAM/FEM	RM	PE	NS	BAM/NON-FEM	RM	PE	NS	

A brief description of the criteria pollutant and program monitoring networks are provided below:

OZONE (O₃)

The SCAQMD operates 28 sites where O₃ measurements are made as part of the Air Monitoring Network. O₃ sites are spread throughout the SCAB with highest concentrations measured inland. Figure 1 in Appendix A shows the spatial distribution of these sites and Table 12 shows the minimum monitoring requirements.

PM₁₀

Size-selective inlet manual high volume samplers are operated at 20 sites to meet the requirements for PM₁₀ Federal Reference Method (FRM) sampling. The PM₁₀ monitoring network contains sites within 20% of the Federal NAAQS as shown in the 2018 Air Quality Data Table (<http://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year>) Figure 9. The SCAQMD PM₁₀ monitoring network exceeds the minimum number of monitors required as shown in Table 16 and Figure 1.

PM₁₀ sampling frequency requirements specify a 24-hour sample must be taken from midnight to midnight (local standard time) to ensure national consistency. The minimum monitoring schedule for the site in the area of expected maximum concentration (24 hour Design Value location) shall be based on the relative level of that monitoring site concentration with respect to the 24-hour standard.

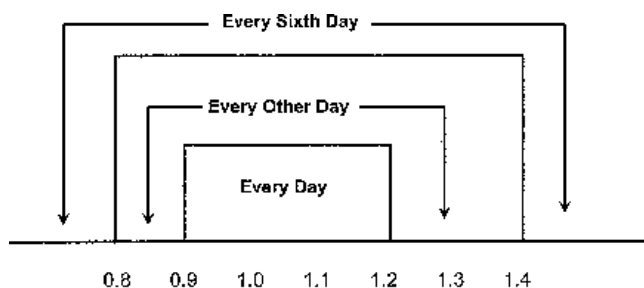


Figure 1 – Ratio to Standard

Calculations show, based on this requirement, all PM₁₀ FRM monitors operate on a one day in six schedule, however SCAQMD has elected to operate Indio, Mira Loma and Rubidoux on one day in three day schedule as show in Tables 5 and 6.

Quality Control for Manual PM₁₀ requires 15 percent of the primary monitors be collocated. Fifty percent of the collocated quality control monitors should be deployed at sites with daily concentrations estimated to be within plus or minus 20 percent of the applicable NAAQS and the remainder at the PQAOs discretion. If an organization has no sites with daily concentrations within plus or minus 20 percent of the NAAQS, 50 percent of the collocated quality control monitors should be deployed at those sites with the daily mean concentrations among the highest for all sites in the network and the remainder at the PQAOs discretion. The Indio, Mira Loma and Rubidoux sites meet this requirement and are designated PM₁₀ collocated and shown in Tables 5, 6 and 24.

PM10 continuous analyzers are operated at 11 sampling sites. These real-time devices are capable of making hourly particulate concentration measurements for real-time reporting. Table 4 describes the monitor type, site type, monitoring purpose, and spatial scale for continuous particulate analyzers. Figure 2 in Appendix A shows the spatial distribution of the sampling sites. Real-time monitors, for the most part, are clustered in the high concentration areas, with three located in the Coachella Valley desert area where wind-blown crustal material has caused exceedances of the twenty-four hour standard during exceptional events. In downwind areas of the SCAB, a large fraction of particulate is formed in the atmosphere; PM10 typically reaches maximum levels in the SCAB during late summer through early winter months.

Where both 24 hour PM10 FRM samplers and PM10 FEM continuous analyzers are deployed together, they are sited as collocated for data comparison purposes where possible. FRM PM10 sampler remains the primary analyzer used for attainment purposes and continuous analyzers are designated as audit samplers unless the primary 24 hour FRM PM10 is offline then continuous FEM analyzer data can be substituted.

TABLE 5. Manual PM₁₀ FRM Monitoring Stations Assigned Site Numbers

	Location	Site Code	ARB No.	AQS No.	Start Date	Schedule
1	Anaheim	ANAH	30178	060590007	01/03/99	1-in-6
2	Azusa	AZUS	70060	060370002	01/04/99	1-in-6
3	Banning	BNAP	33164	060650012	04/01/97	1-in-6
4	Central San Bernardino Mountains	CRES	36181	060710005	10/01/73	1-in-6
5	Fontana	FONT	36197	060712002	01/03/99	1-in-6
6A	Indio “A”	INDI	33157	060652002	01/30/99	1-in-6
6B	Indio “B” ¹	INDI	33157	060652002	01/30/99	1-in-3
6C	Indio “C” ²	INDI	33157	060652002	01/30/99	1-in-6
7	Los Angeles (Hastings)	LAXH	70111	060375005	04/01/04	1-in-6
8	Long Beach (Hudson)	HDSN	70033	060374006	01/01/10	1-in-6
9	Mecca (Saul Martinez)	SLMZ	33033	060652005	01/01/11	1-in-6
10A	Los Angeles (Main St.) “A”	CELA	70087	060371103	01/03/99	1-in-6
10B	Los Angeles (Main St.) “B” ³	CELA	70087	060371103	01/03/99	1-in-6
11A	Mira Loma (Van Buren) “A”	MLVB	33165	060658005	11/09/05	1-in-6
11B	Mira Loma (Van Buren) “B” ¹	MLVB	33165	060658005	03/08/12	1-in-3
11C	Mira Loma (Van Buren) “C” ²	MLVB	33165	060658005	03/08/12	1-in-6
12	Mission Viejo	MSVJ	30002	060592022	06/01/99	1-in-6
13	Norco	NORC	33155	060650003	12/01/80	1-in-6
14	Palm Springs	PLSP	33137	060655001	12/26/99	1-in-6
15	Perris	PERI	33149	060656001	05/01/73	1-in-6
16	Redlands	RDLA	36204	060714003	09/01/86	1-in-6
17A	Rubidoux “A”	RIVR	33144	060658001	01/03/99	1-in-3
17B	Rubidoux “B” ¹	RIVR	33144	060658001	01/03/99	1-in-6
18	San Bernardino	SNBO	36203	060719004	01/03/99	1-in-6
19	Santa Clarita	SCLR	70090	060376012	05/01/01	1-in-6
20	South Long Beach	SLGB	70110	060374004	06/01/03	1-in-6

¹ Run as collocated on 1-in-6 run day.

² Run on 1-in-3 run day.

³ Run as collocated NATTS

TABLE 6. Manual PM₁₀ FRM Monitor Sampling Frequency

	Location	AQS No.	Max 24 Hour Value	Required Sampling Frequency	Sampling Frequency
1	Anaheim	060590007	95	1-in-6	1-in-6
2	Azusa	060370002	83	1-in-6	1-in-6
3	Banning	060650012	97	1-in-6	1-in-6
4	Central San Bernardino Mountains	060710005	56	1-in-6	1-in-6
5	Fontana	060712002	75	1-in-6	1-in-6
6A	Indio “A”	060652002	143	1-in-6	1-in-6
6B	Indio “B” ²	060652002	120	1-in-3	1-in-3
6C	Indio “C” ¹	060652002	86	1-in-6	1-in-6
7	Los Angeles (Hastings)	060375005	46	1-in-6	1-in-6
8	Long Beach (Hudson)	060374006	79	1-in-6	1-in-6
9	Mecca (Saul Martinez)	060652005	198	1-in-6	1-in-6
10A	Los Angeles (Main St.) “A”	060371103	64	1-in-6	1-in-6
10B	Los Angeles (Main St.) “B” ⁴	060371103	N/A	1-in-6	1-in-6
11A	Mira Loma (Van Buren) “A”	060658005	111	1-in-6	1-in-6
11B	Mira Loma (Van Buren) “B” ²	060658005	101	1-in-6	1-in-3
11C	Mira Loma (Van Buren) “C” ¹	060658005	110	1-in-6	1-in-6
12	Mission Viejo	060592022	58	1-in-6	1-in-6
13	Norco	060650003	85	1-in-6	1-in-6
14	Palm Springs	060655001	60	1-in-6	1-in-6
15	Perris	060656001	75	1-in-6	1-in-6
16	Redlands	060714003	77	1-in-6	1-in-6
17A	Rubidoux “A”	060658001	89	1-in-6	1-in-3
17B	Rubidoux “B” ¹	060658001	92	1-in-6	1-in-6
18	San Bernardino	060719004	76	1-in-6	1-in-6
19	Santa Clarita	060376012	66	1-in-6	1-in-6
20	South Long Beach	060374004	70	1-in-6	1-in-6

¹ Run as collocated on 1-in-6 run day.

² Run on 1-in-3 run day.

³ Only 2 years of data collected.

⁴ Run as collocated NATTS

PM₁₀-2.5

PM₁₀-2.5 (PM Coarse) was previously required at NCore sites until the revision to 40 CFR Part 58 on March 28, 2016. PM Coarse is derived from the continuous BAM PM₁₀ and PM_{2.5} particulate monitors. SCAQMD continues to measure this optional parameter utilizing the continuous BAM monitors at the Los Angeles (Main) and Rubidoux air monitoring sites as shown in Table 4. The Purpose, Site Type and Scale are similar to the continuous PM₁₀ and PM_{2.5} instruments from which data is calculated.

NITROGEN DIOXIDE (NO₂)

The NO₂ network consists of 22 area wide, and 4 near road sites. These sites are located in areas of highest expected NO₂ concentrations.

The Near Road monitoring network consists of four sites which were implemented in January of 2014 and 2015. These sites were selected based upon criteria established in the EPA Near Road Technical Assistance Document, and approved by U.S. EPA. The implementation plan was presented publically at a Near Road Workshop to solicit input. Near Road sites are adjacent to the most heavily traveled roadways identified in the basin where peak hourly NO₂ concentrations occur within the near-road environment. Site selection took into consideration satisfying siting criteria, site logistics (e.g., gaining access to property and safety), and population exposure for those who live, work, play, go to school, or commute within the near-roadway environment. The spatial distribution of NO₂ monitors is shown in Figure 3 in Appendix A and minimum monitoring requirements are shown in Table 17.

Additionally, the Regional Administrator identified 40 NO₂ sites nationwide with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations. The Regional Administrator in collaboration with SCAQMD identified the Los Angeles (Main), Long Beach (North) and San Bernardino sites from the existing area-wide monitoring network to meet this requirement (58.10[a][5]). On September 30, 2013, Compton was also designated as a RA 40 site. Review of 1992 through 2017 NO₂ data shows the State and Federal standards for NO₂ were not violated.

CARBON MONOXIDE (CO)

Area wide CO monitors measure concentrations at 22 ambient locations and 2 near road locations within the SCAQMD ambient air monitoring network. Figure 4 in Appendix A shows the spatial distribution of these sites. CO emissions, primarily from motor vehicles, show a pattern consistent with major freeway arteries. A review of data for 2017 shows State and Federal standards for CO were not exceeded.

SULFUR DIOXIDE (SO₂)

SO₂ monitors are located at 6 sites. Figure 5 in Appendix A shows the spatial distribution of the sites. Most SO₂ emissions result from federally regulated transportation sources such as marine vessels. The monitors are clustered largely in the areas where sources are located.

On June 22, 2010 EPA strengthened the SO₂ National Ambient Air Quality Standard (NAAQS). Network design requirements included new minimum requirements be determined by the Population Weighted Emissions Index (PWEI).

The PWEI shall be calculated by States for each CBSA they contain or share with another State or States for use in the implementation of or adjustment to the SO₂ monitoring network. The PWEI shall be calculated by multiplying the population of each CBSA, using the most current census data or estimates, and the total amount of SO₂ in tons per year emitted within the CBSA area, using an aggregate of the most recent county level emissions data available in the National Emissions Inventory (NEI) for each county in each CBSA. The resulting product shall be divided by one million, providing a PWEI value, the units of which are million persons-tons per year. For any CBSA with a calculated PWEI value equal to or greater than 1,000,000, a minimum of three SO₂ monitors are required within that

CBSA. For any CBSA with a calculated PWEI value equal to or greater than 100,000, but less than 1,000,000, a minimum of two SO₂ monitors are required within that CBSA and for any CBSA with a calculated PWEI value equal to or greater than 5,000, but less than 100,000, a minimum of one SO₂ monitor is required within that CBSA.

TABLE 7. PWEI Calculation and Minimum Required SO₂

CBSA	Population Estimate ¹	NEI SO ₂ Emissions ²	PWEI Value	Minimum Required SO ₂
31080	13,353,907	6,049.52	80,785	1
40140	4,580,670	1,289.67	5,908	1

¹ 2017 Census estimate available for download at https://factfinder.census.gov/faces/nav/jsf/pages/download_center.xhtml

² 2014 NEI Data most recent available at <https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>

SCAQMD exceeds the minimum monitoring requirement for SO₂ monitors; the Federal standard has not been exceeded for nearly 35 years.

PARTICULATE LEAD

Total Suspected Particulate (TSP) Pb measurements are collected at 11 sites as part of the particulate network; 4 of the sites are Source Impact for Pb, 2 are NCore, and the remaining 5 sites measure ambient Pb. Minimum monitoring and collocation requirements are shown in Tables 8, 20, 21, 22 and 24. The spatial distribution of these sites is shown in Figure 6 in Appendix A.

EPA regulation requires local agencies conduct ambient air Pb monitoring near Pb sources which are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS, taking into account the logistics and potential for population exposure. At a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.50 or more tons per year and from each airport which emits 1.0 or more tons per year based the most recent National Emission Inventory (NEI). The most recent NEI data (<https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>) shows no, non-airport Pb sources which emits 0.50 or more tons per year or any airports exceed the 1.0 tpy threshold requiring a monitoring plan.

Although no source Pb monitoring is required based on NEI estimates, SCAQMD elected to operate source Pb sites surrounding the Exide (Vernon), Quemetco (Industry), and the Trojan Battery facilities. Existing urban Pb monitoring include Compton, LAX Hastings, Pico Rivera, San Bernardino, and South Long Beach. Los Angeles and Rubidoux are designated NCore Pb sites, however, EPA proposed removing the requirement for Pb monitoring at NCore sites (79 FR 54395, September 11, 2014) and action may be taken to request these monitors be removed in consultation with EPA. Upland Pb was closed on February 9, 2017 due to terms of the lease and SA Recycling was closed on July 11, 2017 due to sale of property. The Van Nuys Airport Pb monitor was granted a retroactive waiver by EPA during 2017. SCAQMD continues to meet or exceed the minimum monitoring requirements for Pb. At the end of 2017, SCAQMD is not in violation of the Pb NAAQS.

TABLE 8. Manual Pb FRM Monitor Sampling Frequency

	Location	AQS No.	Type	Required Sampling Frequency
1	ATSF (Exide)	060371406	Source	1-in-6
2	Closet World (Quemetco)	060371404	Source	1-in-6
3A	Compton “A”	060371302	Area Wide	1-in-6
3B	Compton “B” ⁴	060371302	Area Wide	1-in-6
4	LAX Hastings	060375005	Area Wide	1-in-6
5	Long Beach (South)	060374004	Area Wide	1-in-6
6A	Los Angeles (Main St.) ¹	060371103	NCore	1-in-6
6B	Los Angeles (Main St.) ^{1, 4}	060371103	NCore	1-in-6
7	Pico Rivera #2	060371602	Area Wide	1-in-6
8	Rehrig (Exide) ⁵	060371405	Source	1-in-6
9	Rubidoux ¹	060658001	NCore	1-in-6
10	San Bernardino	060719004	Area Wide	1-in-6
11	SA Recycling ²	060711407	Source	1-in-6
12	Uddelholm (Trojan Battery)	060371403	Source	1-in-6
13	Upland ³	060711004	Area Wide	1-in-6

¹ EPA proposed removing the requirement for Pb monitoring at NCore sites (79 FR 54395, September 11, 2014).

² SA Recycling closed on July 11, 2017 due to sale of property.

³ Upland Pb closed on February 9, 2017 due to terms of lease.

⁴ Run as collocated on 1-in-6 run day.

⁵ Rehrig facility non-operational between September 21, 2017 and January 25, 2018 due to construction.

Photochemical Assessment Monitoring Stations

EPA requires a plan for making Photochemical Assessment Monitoring Stations (PAMS) measurements, in accordance with 40 CFR 58 appendix D paragraph 5(a) be submitted to the Regional Administrator no later than July 1, 2018. These Enhanced Monitoring Plans (EMP) should provide for the required PAMS measurements to begin by June 1, 2019. To meet this requirement, SCAQMD’s PAMS EMP is attached as Appendix D. The EMP includes the final site location, the types of instruments to be installed, and frequency of measurements that will be made. SCAQMD anticipates enhanced measurements to begin during 2018 and the existing PAMS monitoring network to continue monitoring through the end of 2018.

SCAQMD utilizes PAMS data for trends analysis, trajectory modeling, and source emissions inventory reconciliation. In January, 2018, SCAQMD began large scale monitoring at selected PAMS sites as part of the MATES V program. The goal is to conduct measurements with better spatial resolution (both vertical and horizontal), establish trend data (yearly, seasonally, monthly, weekly, daily, hourly) – develop control strategies, emissions inventory evaluations, local scale studies, full scale photochemical transport modeling, VOC/NOx profiling, and background characterization.

The 2018 PAMS network monitoring objectives and requirements are summarized in Table 9, Table 23 and Figure 7 in Appendix A which shows the distribution of the PAMS network. Pico Rivera is a collocated site for VOC canister and carbonyl sampling.

TABLE 9. PAMS Network

Site Type	Date Established as PAMS	Site / AQS ID#	January 1 to December 31		Additional Requirements
			VOC	Carbonyl	
1	04/01/2004	LAX Hastings (replaced Hawthorne)	1 x 24 hr. sample every 6 th day	No Sampling	
2	06/01/1995	Azusa	1 x 24 hr. sample every 6 th day	No Sampling	No/NOx required
2	06/01/2009	Los Angeles (Main)	1 x 24 hr. sample every 6 th day	1 x 24 hr. sample every 6 th day	Trace level CO required at one type 2 site.
2	08/01/2005	Pico Rivera #2	1 x 24 hr. sample every 6 th day	1 x 24 hr. sample every 6 th day	
3	06/09/2009	Rubidoux	1 x 24 hr. sample every 6 th day	No Sampling	NOy required
3	05/01/2001	Santa Clarita	1 x 24 hr. sample every 6 th day	1 x 24 hr. sample every 6 th day	

MONITORING OBJECTIVES:

- 1 – Upwind and background characterization site (type 1 or 3)
- 2 – Maximum O3 precursor emissions impact site
- 3 – Maximum O3 concentration site
- 4 – Extreme downwind monitoring site

MONITORING REQUIREMENTS:

- One type 1 or type 3 site required per area
- one type 2 site required per area
- No type 4 required

REDUCED REQUIREMENTS:

- Speciated VOC only required at type 2 and one other
- Carbonyl only required in areas classified as serious or above 8-hr zone
- NO/NOx required only at type 2
- NOy required at one site per PAMS area (type 1 or 3)

PM2.5

SCAQMD operates a total of 19 FRM sites exceeding the minimum number of required FRM PM2.5 SLAMS sites per 40 CFR 58 appendix D and shown in Tables 10, 11 and 13. These sites are located at NCore as well as Non-NCore SLAMS sites and designed to complement each other; both types are used to meet the minimum PM2.5 network requirements.

FRM 2.5 SLAMS monitoring sites are selected to represent area-wide air quality and include monitors collocated with NCore/PAMS sites. The majority of monitoring sites are neighborhood scale, however, some micro scale PM2.5 monitoring sites are considered to represent area-wide air quality including the Route 710 Long Beach and Route 60 Ontario near road sites.

The Compton and Mira Loma sites are designated daily design value sites as shown in Table 13. The Ontario Route 60 near road site satisfies the minimum daily monitoring requirement, and minimum sampling frequencies are shown in Table 11. Monitors exceed the minimum NCore 1 in 3 requirements at the Rubidoux and Los Angeles (Main) sites. The remaining sites meet or exceed the 1 in 3 schedule with the exception of Big Bear which was approved at the inception of the PM2.5 program as a 1 in 6 site. The Federal minimum monitoring requirements for PM2.5 are being met and/or exceeded by the SCAQMD PM2.5 monitoring network.

Collocated FRM PM2.5 sites include Anaheim, Central Los Angeles, and Mira Loma (Van Buren), Pasadena, and Rubidoux. Of the collocated sites, three are located at sites with annual mean particulate concentrations among the highest 25 percent of the annual mean concentrations for all sites in the network as required in 40 CFR § 58 Appendix A 3.3.1. Supporting data is shown in Figure 9, 2017 Air Quality Data Table. The latest data can be found at:

(<http://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year>).

Continuous PM2.5 monitors are required at 2 sites in each MSA as defined in 40 CFR 58 appendix D and shown in Table 14. FEM continuous analyzers are largely collocated with daily FRM monitors. SCAQMD has conducted a PM2.5 Continuous Monitor Comparability Assessment in accordance with the PM NAAQS rule published on January 15th, 2013 (78 FR 3086) for the period 2015-2017. Specific to the provisions detailed in §58.10 (b)(13) and §58.11 (e), the assessment results, shown in Appendix C, indicate that SCAQMD PM2.5 continuous monitors do not meet the criteria to be compared against the NAAQS. SCAQMD requests a waiver to exclude PM2.5 continuous monitor data from NAAQS comparison for 2017. Meanwhile, SCAQMD is conducting comparison studies of newer technology to determine their ability to meet the criteria to be compared against the NAAQS.

Where both 24 hour FRM PM2.5 samplers and FEM PM2.5 continuous analyzers are deployed together, they are sited as collocated for data comparison purposes. The FRM PM2.5 sampler remains the primary analyzer used for attainment purposes and continuous analyzers are designated as audit samplers unless the primary 24 hour FRM PM2.5 is offline

then continuous FEM analyzer data can be substituted if the FEM analyzer meets the acceptance criteria under 78 FR 3086.

Coarse particulate matter measurements (PM_{10-2.5}) were required at NCore sites until the revision to 40 CFR Part 58 on March 28, 2016. SCAQMD continues to measure this optional parameter by utilizing the continuous BAM monitors at the Los Angeles (Main) and Rubidoux air monitoring sites. These monitors are shown in Table 4.

Most of the sites within the SCAQMD FRM PM_{2.5} network are in areas where PM_{2.5} levels are higher than the NAAQS. Therefore multiple sites are listed as population exposure and high concentration. If a PM_{2.5} network modification were to be implemented for a site that was in exceedance of the PM_{2.5} NAAQS levels, SCAQMD would notify U.S. EPA Region IX via written communication. Public notice of network modifications occurs as part of the annual network plan process which is stated in the annual network plan as required in 40 CFR § 58.10(c). All sites in the Network using FRM samplers are suitable for comparison against the annual PM_{2.5} NAAQS.

PM_{2.5} speciation sampling is also a part of the SCAQMD PM_{2.5} program. Chemical speciation monitors are located at Los Angeles (Main Street) and Rubidoux as part of the PM_{2.5} Speciation Trends Network (STN). These sites were selected and approved with the concurrence of the Administrator. The PM_{2.5} chemical speciation urban trends sites include analysis for elements, selected anions, cations, and carbon. Chemical speciation is conducted at Anaheim and Fontana sites as part of the SCAQMD monitoring network, separate from STN and samples analyzed at the SCAQMD laboratory. Speciated data is used to develop implementation plans and support atmospheric/health effects related studies.

TABLE 10. Manual PM_{2.5} FRM Monitoring Stations Assigned Site Numbers

	Location	Site Code	ARB No.	AQS No.	Start Date
1A	Anaheim “A”	ANAH	30178	060590007	01/03/99
1B	Anaheim “B” ²	ANAH	30178	060590007	01/03/99
2	Azusa	AZUS	70060	060370002	01/04/99
3	Big Bear	BGBR	36001	060718001	02/08/99
4	Compton	COMP	70112	060371302	11/08
5	Fontana	FONT	36197	060712002	01/03/99
6	Indio	INDI	33157	060652002	01/30/99
7	Long Beach (North) ¹	LGBH	70072	060374002	01/03/99
8	Long Beach Route 710 Near Road	W710	70032	060374008	01/01/15
9A	Los Angeles (Main St.) “A”	CELA	70087	060371103	01/03/99
9B	Los Angeles (Main St.) “B” ³	CELA	70087	060371103	01/06/99
10A	Mira Loma (Van Buren) “A”	MRLM	33165	060658005	11/09/05
10B	Mira Loma (Van Buren) “B” ³	MRLM	33165	060658005	03/08/12
11	Mission Viejo	MSVJ	30002	060592022	06/15/99
12	Ontario Route 60 Near Road	60NR	36036	060710027	01/01/15
13	Palm Springs	PLSP	33137	060655001	12/26/99
14A	Pasadena “A”	PASA	70088	060372005	03/04/99
14B	Pasadena “B” ²	PASA	70088	060372005	03/04/99
15A	Pico Rivera #2	PICO	70185	060371602	09/12/05
15B	Pico Rivera #2 ⁴	PICO	70185	060371602	09/12/05
16	Reseda	RESE	70074	060371201	01/24/99
17A	Rubidoux “A”	RIVR	33144	060658001	01/03/99
17B	Rubidoux “B” ³	RIVR	33144	060658001	01/03/99
18	San Bernardino	SNBO	36203	060719004	01/03/99
19	South Long Beach	SLGB	70110	060374004	06/20/03

¹Although the N. Long Beach station has been closed, FRM PM_{2.5} measurements have been allowed to be continued at the location until a suitable replacement site can be implemented.

²RAAS run as collocated on 1-in-6 run day.

³Partisol 2025i run as collocated on 1-in-6 run day.

⁴Partisol 2000i run as collocated on 1-in-6 run day.

TABLE 11. Manual PM_{2.5} FRM Monitor Sampling Frequency

	Location	AQS No.	24 hour Design Value	33-37ug/m ³	Annual AM Design Value	< 12 ug/m ³	Required Frequency ¹	Current Frequency
1A	Anaheim “A”	060590007	31	No	10.1	No	1 in 3	Daily
1B	Anaheim “B” ³	060590007	N/A	Collocated			1 in 6	1 in 6
2	Azusa	060370002	27	No	10.2	No	1 in 3	1-in-3
3	Big Bear	060718001	27	No	6.7	No	1 in 6 ⁶	1-in-6
4	Compton	060371302	39	No	12.1	Yes	1 in 3	1-in-3
5	Fontana	060712002	32	No	11.4	No	1 in 3	1-in-3
6	Indio	060652002	16	No	7.8	No	1 in 3	1-in-3
7	Long Beach (North) ²	060374002	29	No	10.7	No	1 in 3	Daily
8	Long Beach Route 710 Near Road	060374008	32	No	12.6	No	1 in 3	Daily
9A	Los Angeles (Main St.) “A”	060371103	32	No	12.0	Yes	1 in 3	Daily
9B	Los Angeles (Main St.) “B” ⁴	060371103	N/A	Collocated			1 in 6	1-in-6
10A	Mira Loma (Van Buren) “A”	060658005	39	No	13.5	No	1 in 3	Daily
10B	Mira Loma (Van Buren) “B” ⁴	060658005	N/A	Collocated			1 in 6	1-in-6
11	Mission Viejo	060592022	15	No	7.4	No	1 in 3	1-in-3
12	Ontario Route 60 Near Road	060710027	38	No	14.6	No	1 in 3	Daily
13	Palm Springs	060655001	14	No	5.8	No	1 in 3	1-in-3
14A	Pasadena “A”	060372005	26	No	9.7	No	1 in 3	1-in-3
14B	Pasadena “B” ³	060372005	N/A	Collocated			1 in 6	1-in-6
15A	Pico Rivera #2 “A”	060371602	33	Yes	11.8	Yes	1 in 3 ⁷	1-in-3
15B	Pico Rivera #2 “B” ⁵	060371602	N/A	Collocated			1 in 6	1-in-6
16	Reseda	060371201	25	No	9.3	No	1 in 3	1-in-3
17A	Rubidoux “A”	060658001	27	No	12.2	No	1 in 3	Daily
17B	Rubidoux “B” ⁴	060658001	N/A	Collocated			1 in 6	1-in-6
18	San Bernardino	060719004	31	No	11.0	No	1 in 3	1-in-3
19	South Long Beach	060374004	28	No	10.3	No	1 in 3	Daily

¹ Highest DV site for MSA must sample daily if 24 hour DV is within 5% of 24hr NAAQS and Annual DV is < annual PM_{2.5} standard. Changes in sampling frequency attributable to changes in design values shall be implemented no later than January 1 of the calendar year following the certification of such data as described in §58.15.

² Although the N. Long Beach station has been closed, FRM PM_{2.5} measurements continue at the location until a suitable replacement site can be implemented.

³ RAAS run as collocated on 1-in-6 run day.

⁴ Partisol 2025i run as collocated on 1-in-6 run day.

⁵ Partisol 2000i run as collocated on 1-in-6 run day.

⁶ 1 in 6 schedule exception established at inception of program.

⁷ Site remains 1 in 3, location does not determine 24 hour DV for area per 58.12 (d) iii.

National Air Toxics Trends Station (NATTS)

The NATTS program was developed to fulfill the need for long-term Hazardous Air Pollutant (HAP) monitoring data of consistent quality nationwide. SCAQMD has conducted several air toxics measurement campaigns in the past, which demonstrated the variety and spatial distribution of air toxics sources across SCAB. A single air toxics measurement site cannot reflect the levels and trends of air toxics throughout the SCAB. For this reason, two

NATTS sites are used to characterize the SCAB's air toxics levels. The first site is a central urban core site in Los Angeles that reflects concentrations and trends due primarily to urban mobile source emissions. A second, more rural, inland site at Rubidoux captures the transport of pollutants from a variety of upwind mobile and industrial sources in the most populated areas of the air basin. NATTS monitoring began in February 2007 and continues at the Los Angeles (Main) and Rubidoux air monitoring sites. During April 2013, a system audit was conducted by the EPA, which assessed the SCAQMD NATTS program. The audit found no major issues with the operation of the network.

NCore

NCore monitoring rules required that SCAQMD make NCore sites operational by January 1st, 2011. To meet this goal, SCAQMD installed trace level analyzers for CO, NOY and SO₂ at the Rubidoux and Los Angeles (Main) sites. Continuous PM₁₀ and PM_{2.5} BAM are utilized for PM₁₀-PM_{2.5} measurements at both sites. Both the Los Angeles and Rubidoux sites are NATTS and PAMS monitoring locations.

Special Programs

Special monitoring programs are conducted for rule compliance purposes, to characterize the levels of toxic air contaminants and other criteria pollutants in sub-regional areas or communities in the SCAB, or to support modeling and planning efforts. The following is a list of special monitoring programs that were active during the past year. Note that this is being provided for informational purposes only.

MATES V

The South Coast Air Basin (SCAB) is a highly urbanized area home to about seventeen million people who own and operate about eleven million motor vehicles, and contains some of the highest concentrations of industrial and commercial operations in the country. In 1986, SCAQMD conducted the first MATES study to determine the SCAB-wide risks associated with major airborne carcinogens. At the time, the state of technology was such that only ten known air toxic compounds could be analyzed. In 1998, a second MATES study (MATES II) was conducted; MATES II included a monitoring program of 40 known air toxic compounds, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize health risks from hazardous air pollutants. In April 2004, the SCAQMD conducted the third MATES study (MATES III) to assess the ambient levels of airborne compounds linked to adverse health effects in humans. And in June, 2012, SCAQMD began the MATES IV study which concluded in June, 2013. A final report was released May 1, 2015.

The MATES V Study includes a fixed site monitoring program with ten stations, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the basin. The study focuses on the carcinogenic risk from exposure to air toxics but does not estimate mortality or other health effects from particulate exposures.

The purpose of the MATES V fixed site monitoring is to characterize long-term regional air toxics levels in residential and commercial areas. To complement and enhance the fixed site monitoring, MATES V efforts will include: advanced state-of-the-art monitoring

technologies, low-cost sensor networks, and near real-time data and community engagement to conduct enhanced air toxics monitoring at local scales with a focus on EJ communities, especially those near refineries. The motivation behind the enhanced monitoring efforts is to better characterize air toxics levels in highly impacted areas, to provide higher resolution air quality data, and to better understand emissions from petroleum refineries and warehouses. The most recent program updates can be found here:

<http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-v>

Aliso Canyon

On November 10, 2015, SCAQMD field staff supported California Air Resources Board (CARB) monitoring efforts in the collection of samples to assess the identity and levels of pollution related to a large natural gas leak. In addition, on December 4, 2015, the SCAQMD Governing Board approved the purchase of equipment and services to enhance natural gas monitoring capability at the Aliso Canyon Facility. This equipment is currently used inside the Aliso Canyon facility and in the surrounding communities, including Porter Ranch. The new equipment provided increased accuracy and the flexibility for deployment in mobile and stationary platforms. A final report was issued January, 2018 and can be found at:

<http://www.aqmd.gov/home/news-events/community-investigations/aliso-canyon-update>

Fugitive Dust Study

In support of SCAQMD Rule 403 - Fugitive Dust, SSI PM10 samplers are deployed on an episodic basis upwind and downwind of potential sources as required under Rule 403. Since 2003, periodic sampling has been conducted around gravel quarries and other industries which seem to be producing large volumes of dust.

Hexavalent Chrome

The SCAQMD has an ongoing program to collect ambient hexavalent chromium samples in the vicinity of several chrome plating and cement production facilities located throughout the SCAB. Monitoring continues at Paramount, Newport Beach, Riverside, and other locations throughout the SCAQMD jurisdiction. SCAQMD Monitoring activities can be found at:

<http://www.aqmd.gov/home/air-quality/air-quality-studies/special-monitoring>

GERDAU-TAMCO

GERDAU North America acquired the TAMCO Rancho Cucamonga steel mini mill in October, 2010. In 2012, an environmental audit was conducted at the facility and found discrepancies in reported emissions with respect to SOx and NOx. Further, it was suspected that Pb emissions can contribute to an exceedance of the NAAQS. SCAQMD conducted inspections of the facility to address issues and continues monitoring for Pb, Cr+6, and other metals at the facility. Monitoring efforts at TAMCO currently measure Pb, Total Metals and Cr+6 on a one in three day schedule. Most recent monitoring activities can be found at:

<http://www.aqmd.gov/home/rules-compliance/compliance/toxic-hot-spots-ab-2588/gerdau>

Salton Sea Monitoring

On Sunday, September 9, 2012, a strong thunderstorm over the Salton Sea caused odors to be released and transported to the northwest, across the Coachella Valley and through the

Banning Pass into the SCAB. The odors also crossed through the mountain passes west of the Salton Sea and into the Temecula Valley. The following day, SCAQMD received over 235 complaints of sulfur and rotten egg type odors

As the Salton Sea recedes, the potential exists for more of these large-scale odor events to occur. SCAQMD has installed PM10 and H2S air monitors at Mecca (Saul Martinez Elementary School) and the Imperial Irrigation District's Torrez-Martinez site, located near the lakeshore, to monitor the type of expected nuisance pollutants which are released from the Salton Sea. The primary objective of this monitoring network is to place monitoring resources at a lakeside location where peak hydrogen sulfide concentrations are expected to occur and in the nearby community. The monitoring sites will provide data that can be used to assess population exposures in case of odor events and for comparison to the state standard for hydrogen sulfide. The Mecca site has become part of the permanent ambient air monitoring network.

As the Salton Sea is projected to recede, these sites will be further enhanced for monitoring the predicted particulate matter (PM) emissions from the Salton Sea area that may influence the Coachella Valley and South Coast Air Basin PM levels. Large-scale odor events are announced as advisories at the following location:

<http://www.aqmd.gov/home/news-events/current-news>

AllenCo

AllenCo is an oil field and gas production facility located in the City of Los Angeles surrounded by residences including low income housing units, F.D. Lanterman High School, and Mount Saint Mary's College. For several years SCAQMD inspectors have responded to numerous odor complaints from the local community and suspects AllenCo to be the source of these odors. In October 2013 the SCAQMD initiated monitoring at sites around the AllenCo facility. At Mt. St Mary's College, regularly scheduled VOC samples are collected on the roof of the housing building across the street from AllenCo. There is a remote controlled sampler capable of collecting a VOC grab sample should an odor complaint be called into the SCAQMD odor complaint line. In November 2013, AllenCo temporarily shut down operations to repair issues which it believes were the cause of the previous odor complaints. SCAQMD moved the continuous Non-Methane Hydrocarbon Measurements to support the Aliso Canyon monitoring efforts, but continues to collect VOC samples while AllenCo is shutdown. When AllenCo resumes operations, SCAQMD intends on resuming continuous monitoring briefly to assess air quality.

Duarte

To better assess expansion of rock and quarry operations and its impact on residents of Duarte, SCAQMD began continuous PM10 monitoring on May 21, 2013. The study assesses levels of PM10 in the City of Duarte. Real time data can be found at:

<https://xappprod.aqmd.gov/SMSDataSite/Home/AdminIndex?MonitoringSiteId=12>

CPV Sentinel

To better assess potential emission impacts from the CPV Sentinel power plant to the Desert Hot Springs area, SCAQMD has installed and is now operating an FEM PM2.5 directly

downwind of the power plant at a Mission Springs Water District well site. Monitoring began on May 23, 2014 measuring levels of fine particulates (PM_{2.5}) through June, 2017. Data can be found at:

(<http://www.aqmd.gov/home/air-quality/air-quality-studies/special-monitoring/cpv-sentinel-monitoring>).

City of Paramount Air Monitoring Activities

The SCAQMD has undertaken unprecedented, extensive efforts to identify and reduce sources of hexavalent chromium in the City of Paramount. The Summary of Efforts in Paramount, summarizes the significant progress made and provides highlights of monitoring, enforcement, rule development, public outreach, and coordination efforts. The Summary of Efforts and most recent information can be found at:

<http://www.aqmd.gov/docs/default-source/compliance/Paramount/summary-of-efforts-in-paramount.pdf?sfvrsn=8>

<http://www.aqmd.gov/home/regulations/compliance/air-monitoring-activities>

Compton Community Air Toxics Initiative

SCAQMD has begun special air monitoring in the Compton area to assess levels of the toxic compound hexavalent chromium near several metal-processing facilities in the community. Efforts will focus on chromium plating and anodizing plants.

Air monitoring results will be analyzed to assess for toxic emissions from chromium plating and anodizing plants. The Compton area has several potential chrome-emitting facilities in the community in close proximity to each other and to schools, homes, other businesses and other sensitive receptors such as hospitals and senior centers.

While the facilities are not known to be emitting high levels of hexavalent chromium, air monitoring using the latest technology will confirm whether or not they could pose a significant health risk to the community. The most recent information can be found at:

<http://www.aqmd.gov/home/news-events/community-investigations/air-toxics-action-plan/community-air-toxics-init-compton>

Recent or Proposed Modifications to Network

Waiver Requests

SCAQMD is currently working with EPA Region IX representatives to request retroactive waivers for sites which have closed as a result of unexpected lease terminations and circumstances beyond control of SCAQMD. Priority is given to sites which have closed including: Riverside Magnolia, Ontario, Burbank, Long Beach, Costa Mesa, and SA Recycling. Potential replacement sites are under consideration for Burbank and Long Beach and will be selected in consultation with EPA.

PM₁₀ Replacements and Upgrades

During 2017, SCAQMD began upgrading PM₁₀ monitors from GMW Metals Works Manual Reference Method: RFPS-1287-063 to Tisch TE-6001 inlets, Manual Reference

Method: RFPS-0202-141. As a result of this upgrade, method codes and collocations have been updated to reflect changes necessary to meet EPA requirements.

FRM PM2.5 Replacement

SCAQMD began purchasing FRM PM2.5 Partisol Manual Reference Method: RFPS-0498-118 and Manual Reference Method: RFPS-0498-117 to replace Anderson RAAS monitors Manual Reference Method: RFPS-0598-120 which have been a part of the PM2.5 network since the inception of the program. As a result of the deployment, method codes and collocations have been updated to reflect changes necessary to meet EPA requirements.

Upland TSP shutdown

The Upland site originally operated by CARB began operation during March, 1973. The site, located in a trailer park, was initially ideal for air monitoring but no longer meets its original objectives. Park management approached SCAQMD requiring removal of the TSP monitor due to noise issues. The TSP, part of the area wide Pb monitoring network, was removed on February 9, 2017. Meanwhile, SCAQMD is working with MWD to find a suitable replacement site which will be selected in consultation with EPA.

Continuous PM2.5 Testing at Indio, Palm Springs, Mission Viejo

SCAQMD is testing continuous FEM PM2.5 at Indio, Palm Springs, Big Bear Lake, and Mission Viejo. These comparison studies of newer technology including Thermo Scientific Model 5014i Continuous Ambient Particle Monitor Automated Equivalent Method: EQPM-0609-183 are being conducted to determine their ability to meet the criteria to be compared against the NAAQS. If the comparisons meet the Continuous Monitor Comparability Assessment criteria, SCAQMD will apply for a waiver to reduce, or remove manual FRM PM2.5 sampling from the sites.

Crestline

SCAQMD has been operating the Crestline site since 1973. The deteriorating state of the shelter along with compromises made to the siting criteria due to obstructions has made it a candidate for site improvement. As part of regular air monitoring station maintenance, large scale improvements were made during 2017. During construction, the site was shut down in AQS from June 5, 2017 through July 12, 2017.

West LA

SCAQMD has been operating the West LA site since 1983. The deteriorating state of the shelter along with compromises made to the siting criteria due to obstructions made it a candidate for site improvement. As part of regular air monitoring station maintenance, large scale improvements were made including new infrastructure and monitoring platform. During construction, the site was shut down in AQS from August 17, 2017 through January 16, 2018.

Rehrig Temporary Closure

During August, 2017, SCAQMD was notified the Rehrig Pacific Company in Vernon, would be paving the area where SCAQMD monitors are sited for source measurements of Pb at Exide, Vernon. As a result of the re-paving at Rehrig, the Pb monitor was non-operational

and shutdown in AQS between September 21, 2017 and January 25, 2018. The Exide facility is currently non-operational and expected to begin remediation during 2018.

Anaheim relocation

The Anaheim site has been in continuous operation since August, 2001. Since that time the area surrounding the site has changed significantly potential compromising data. The area immediately surrounding the site is designated as a loading/unloading zone for elementary school kids, creating a safety issue. SCAQMD has been approached by Anaheim Elementary School District, to relocate to a nearby school to better meet the needs of the school district and SCAQMD. Potential sites are under evaluation, and any relocation of the current site will be done in consultation with EPA.

Upland relocation

The Upland site has been in continuous operation since March, 1973 and is one of SCAQMD's oldest continuous sites. Since that time the area surrounding the site has changed significantly, potentially compromising data. The site is located in a trailer park, and facility managers have approached SCAQMD indicating the site no longer is consistent with the facility. SCAQMD has been working with MWD to locate a suitable replacement site. Considering the site is important in the measurement of ozone, a site closer to the foothills may more accurately represent transportation of ozone along the San Gabriel foothills. Potential sites are under evaluation, and any relocation of the current site will be done in consultation with EPA.

Minimum Monitoring Requirements

The SCAQMD jurisdictional boundary encompasses two MSAs and two CBSAs whose boundaries and codes mirror those of the MSAs as defined by the U.S. Office of Management and Budget. Los Angeles-Long Beach-Anaheim MSA\CBSA (Code 31080) has an estimated population of 13,353,907 and the Riverside-San Bernardino-Ontario MSA\CBSA (Code 40140) has an estimated population of 4,580,670 according to U.S. Census estimates for 2017. The minimum number of monitors for each pollutant is based on MSA population as described in 40 CFR § 58 Appendix D. The SCAQMD is a Primary Quality Assurance Organization (PQAO) and the network exceeds the minimum monitoring requirements for all criteria pollutants. Details are provided below.

Table 12 Minimum Monitoring Requirements for Ozone.

(Note: Refer to section 4.1 and Table D-2 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population and Census Year	8-hr Design Value (ppb) DV, Years ¹	Design Value Site (name AQS ID)	Monitors Required	Monitors Active	Monitors Needed
31080	Los Angeles Orange	13,353,907 2017	101 2015-2017	Glendora 060370016	4	15	0
40140	San Bernardino Riverside	4,580,670 2017	112 2015-2017	Central San Bernardino Mountains 060710005	3	13	0

¹DV Years – The three years over which the design value was calculated.

Monitors required for SIP or Maintenance Plan: 28

Table 13 Minimum Monitoring Requirements for PM_{2.5} SLAMS (FRM)

(Note: Refer to sections 4.71, 4.72, and Table D-5 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population and Census Year	Annual Design Value [ug/m ³], DV & Years ¹	Annual Design Value Site (Name, AQS ID)	Daily Design Value [ug/m ³], DV & years	Daily Design Value site (name AQS ID)	# Required SLAMS Monitors	# Active SLAMS Monitors	# Additional SLAMS needed
31080	Los Angeles Orange	13,353,907 2017	12.5 2015-2017	Long Beach Route 710 Near Road 060374008	38.8 2015-2017	Compton 060371302	3	10	0
40140	San Bernardino Riverside	4,580,670 2017	14.6 2015-2017	Ontario Route 60 Near Road 060710027	39.4 2015-2017	Mira Loma 060658005	3	9	0

¹DV Years – The three years over which the design value was calculated.

Monitors required for SIP or Maintenance Plan: 19

Table 14 Minimum Monitoring Requirements for Continuous PM2.5 Monitors (FEM and Non-FEM)

(FEM/ARM and non-FEM see 40 CFR 58 Appendix D Section 4.72.)

MSA	Counties	Population and Census Year	Annual Design Value [ug/m3], DV & Years ¹	Annual Design Value Site (Name, AQS ID)	Daily Design Value [ug/m3], DV & years	Daily Design Value site (name AQS ID)	# Required Continuous Monitors	# Active Continuous Monitors	# Additional Continuous needed
31080	Los Angeles Orange	13,353,907 2017	12.5 ² 2015-2017	Long Beach Route 710 Near Road 060374008	38.8 ² 2015-2017	Compton 060371302	2	4-FEM 3-Non FEM	0
40140	San Bernardino Riverside	4,580,670 2017	14.6 ² 2015-2017	Ontario Route 60 Near Road 060710027	39.4 ² 2015-2017	Mira Loma 060658005	2	3-FEM 6-Non FEM	0

¹DV Years – The three years over which the design value was calculated.

²FRM DV has been substituted since continuous monitors do not meet 78 FR 3086.

Monitors required for SIP or Maintenance Plan: 15

Table 15 Minimum Monitoring Requirements for Speciated PM2.5 Monitors

(Note: Refer to sections 4.74 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population and Census Year	Monitors Required ¹	Monitors Active	Monitors Needed
31080	Los Angeles Orange	13,353,907 2017	1	2	0
40140	San Bernardino Riverside	4,580,670 2017	1	2	0

¹Sites designated as part of the PM_{2.5} Speciation Trends Network (STN).

Monitors required for SIP or Maintenance Plan: 4

Table 16 Minimum Monitoring Requirements for PM10

(Note: Refer to section 4.6 and Table D-4 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population and Census Year	2017 Max Concentration [ug/m3]	Max Concentration site (name AQS ID)	# Required Monitors	# Active Monitors	# Additional Monitors Needed
31080	Los Angeles Orange	13,353,907 2017	95	Anaheim 060590007	2-4 Low Conc.	8	0
40140	San Bernardino Riverside	4,580,670 2017	477 (198 ¹)	Mecca 060652005	6-10 High Conc.	11	0

Monitors required for SIP or Maintenance Plan: 19

¹Excluding exceptional wind events.**Table 17 Minimum Monitoring Requirements for NO2**

(Note: Refer to section 4.3 of Appendix D of 40 CFR Part 58.)

CBSA	Population and Census Year	Max AADT Counts (2016) ¹	# Required Near Road Monitors ²	#Active Near Road Monitors	#Additional Near Road Monitors Needed	#Required Area Wide Monitors	#Active Area Wide Monitors	#Additional Area wide Monitors Needed
31080	13,353,907 2017	483,000 2016	2	2	0	1	14	0
40140	4,580,670 2017	289,000 2016	2	2	0	1	8	0

¹Max AADT Counts – 2016 is the latest data available from CA DOT²Four required began January 1, 2014-15.

Monitors required for SIP or Maintenance Plan: 16 (area wide), 4 (near road)

Monitors Required for PAMS: 6

EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.3.4: 3

Table 18 Minimum Monitoring Requirements for SO2

(Note: Refer to section 4.4 of Appendix D of 40 CFR Part 58.)

CBSA	Counties	Total SO2 ¹ [tons/year]	Population Weighted Emissions Index ² [million persons-tons per year]	#Active Near Road Monitors	#Required Area Wide Monitors	#Active Area Wide Monitors	#Additional Area wide Monitors Needed
31080	Los Angeles Orange	6,049.52 2014	80,785	0	1	4	0
40140	San Bernardino Riverside	1,289.67 2014	5,908	0	1	1	0

¹Using latest NEI data 2014, available on EPA website: <https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data>²Calculated by multiplying CBSA population and total SO2 and dividing product by one million.

Monitors required for SIP or Maintenance Plan: 5

EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.4.3: 0

Table 19 Minimum Monitoring Requirements for CO

(Note: Refer to section 4.2 of Appendix D of 40 CFR Part 58.)

CBSA	Population and Census Year	#Required Near Road Monitors ¹	#Active Near Road Monitors ²	#Required Area Wide Monitors	#Active Area Wide Monitors
31080	13,353,907 2017	1	1	0	15
40140	4,580,670 2017	1	1	0	7

¹Began January 1, 2015²Required sites active by January 1, 2015; were collocated with near road NO2 sites.

Monitors required for SIP or Maintenance Plan: 22 (area wide), 2 (near road)

EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.4.2: 0

Table 20 Minimum Monitoring Requirements for Pb at NCore

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

NCore Site (name, AQS ID)	CBSA	Population and Census Year	# Required Monitors	# Active Monitors	# Additional Monitors Needed
Los Angeles (Main Street) 060371103	30180	13,353,907 2017	1	2 ¹	0
Rubidoux 060658001	40140	4,580,670 2017	1	1	0

¹ - Collocated Monitor.**Table 21 Source Oriented Pb Monitoring (Including Airports)**

Source Name	Address	Pb Emissions ¹ (tons per year)	Emission Inventory Source ² and Data Year	Max 3-Month Design Value ¹ [ug/m3]	Design Value Date(third month, year)	# Required Monitors	# Active Monitors	# Additional Monitors Needed
Exide Technologies ³	4010 E. 2nd St, Vernon, CA 90058	0.006	NEI 2014	0.07	3;2014	0	2	0
Trojan Battery	9440 Ann St., Santa Fe Springs, CA 90670	0.0096	NEI 2014	0.04	6; 2015	0	1	0
Quemetco Inc.	720 S 7th Ave, City Of Industry, CA 91746	Unavailable	NEI 2014	0.03	6; 2014	0	1	0

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

¹Consider data from past three years.²Using latest NEI data 2014, available on EPA website: <https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data>³Exide facility is current closed.

Monitors Required for SIP or Maintenance Plan: 0

EPA Regional Administrator required monitors per 40 CFR 58, Appendix D 4.5(C) c: 0

Table 22 Minimum Monitoring Requirements for Pb, Non-Source, Non-NCore Monitoring

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

CBSA	Population and Census Year	Annual Design Value [ug/m3], DV & Years ¹	# Required Area Wide Monitors	# Active Area Wide Monitors	# Additional Monitors Needed
31080	13,353,907 2017	0.002, 2015-2017	0	4	0
40140	4,580,670 2017	0.004 2015-2017	0	1	0

¹DV Years – The three years over which the design value was calculated.**Table 23 Minimum Monitoring Requirements for PAMS**

(Note: Refer to section 5.0 of Appendix D of 40 CFR Part 58.)

Area	Type	# Required PAMS Sites	# Active PAMS Sites	# PAMS Sites Needed
SCAQMD Monitoring Area	NCore Collocated	2	6	0

Table 24 Collocated Manual PM2.5, PM10, and Non-NCore Pb Networks

(Note: Refer to section 3.2.5, 3.3.5, 3.3.1, and 3.3.4.3 of Appendix A, 40 CFR Part 58.)

Pollutant	Method Code	# Primary Monitors	# Required Collocated Monitors	# Active Collocated Monitors
PM2.5 RAAS	120	9	1	2
PM2.5 Partisol 2025	145	6	1	3
PM2.5 Partisol 2000	143	4	1	1
PM10 Hi Vol GMW 1200	063	14	2	2
PM10 Tisch TE 6001	141	6	1	1
Pb (TSP Hi-Vol)	110 (Non Source)	8	1	2
Pb (Tsp Hi-Vol)	110 (Source)	4	1	1

Table 25 Collocated Automated (continuous) PM2.5 Network

(Note: Refer to section 3.2.5 & 3.3.5 of Appendix A, 40 CFR Part 58.)

Method Code	# Primary Monitors	# Required Collocated Monitors	# Active Collocated Monitors ¹
None	0	0	6

¹No FEM PM2.5 BAMs are listed as primary monitors; therefore no collocation requirement exists but all are collocated with FRM monitors.

Data Submittal and Archiving Requirements

As required in 40 CFR 58.16(a), data is reported via AQS including all ambient air quality data and associated quality assurance data for SO₂, CO, O₃, NO₂, Near Road NO₂, NO, NO_y, NO_x, Pb-TSP mass concentration, Pb-PM₁₀ mass concentration, PM₁₀ mass concentration, PM_{2.5} mass concentration, filter-based PM_{2.5} FRM/FEM field blank mass, sampler-generated average daily temperature, and sampler-generated average daily pressure, chemically speciated PM_{2.5} mass concentration data, PM_{10-2.5} mass concentration, meteorological data from NCore and PAMS sites, average daily temperature\average daily pressure for Pb sites and metadata records\information as specified by the AQS Data Coding Manual through December 31, 2017.

A data certification letter has been submitted to the EPA Regional Administrator certifying applicable data collected at all SLAMS and at all FRM, FEM, and ARM SPM stations that meet criteria in appendix A, to part 58, for January 1 through December 31, 2017.